Pro-Poor Growth in Indonesia

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Introduction

❖ Definition

Pro-poor growth is defined as broad-based economic growth that increases the poor's income and welfare proportionately more than the non-poor's. In other words, it is an inclusive growth where the poor do not get left behind.

Measurement error refers to the difference between the measured/reported value of a variable and its true value. In a regression, the measurement error of a predictor variable causes the regression analysis to be inaccurate or biased.

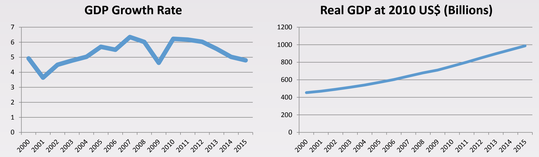
Example: $savings = \beta_0 + \beta_1 income + \beta_2 education + \varepsilon$

In the above regression, β_1 indicates the effect of an increase in a unit of income on savings. However, if income is measured with error, ordinary least square estimates of β_1 will be biased and this will not give an accurate estimate of the impact on savings.

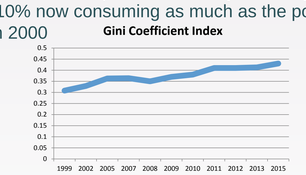
In the case of measurement errors, **instrumental variables** are used to get an unbiased estimate of β_1. These are variables that are correlated with our regressor, income and, uncorrelated with our regressand, savings.

❖ Background on Indonesia

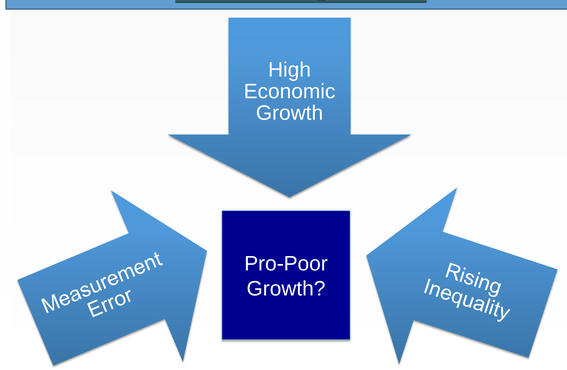
Indonesia has experienced an average annual real GDP per capita growth rate 5.4% over the last 15 years and is one the world's 20 largest economies.



However, there are concerns of the growth being unequal. The Gini coefficient, an indicator of inequality, has risen from 0.31 points in 2000 to 0.43 in 2015. Consumption is also very unevenly distributed, with the richest 10% now consuming as much as the poorest 54%, rising from 42% in 2000



Research Question

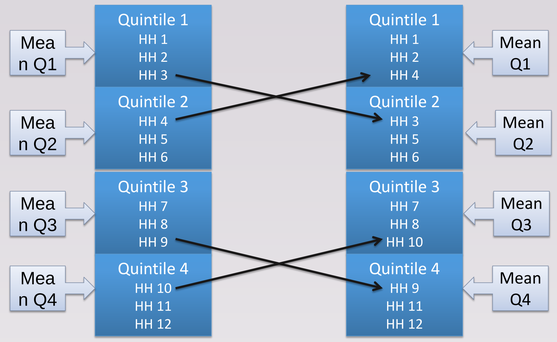


Methodology

Data Used: Indonesia Family Life Survey 2007 and 2014

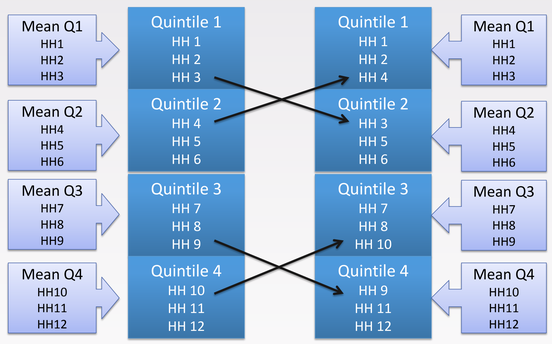
❖ Cross-Section Analysis

- Compare mean of per capita expenditure of a quintile in the 1st year with the mean for households in that same quintile in the second year.
- Shows the **distribution of income** in a country
- Reflects the changes in **patterns of inequality** over time



❖ Panel-Data Analysis

- Compare, for a given quintile, **the same households'** mean per capita expenditure in the first and second year
- Conveys the **degree of mobility** for the poor to move up into higher quintiles



Measurement Error

Simulate a joint distribution of the true values of per capita expenditure in 2007 and 2014, by making inferences of the mean, variance of the variables and its error terms.

$$y_1 = y_1^* \varepsilon_{y1}$$

$$\Rightarrow \ln(y_1) = \ln(y_1^*) + \ln(\varepsilon_{y1})$$

Where
y_1 is the observed value of expenditure at time 1
y_1^* is the true value of expenditure at time 1
ε_{y1} is the random measurement error

$$\ln(y_2^*) = \alpha_2^* + \beta_2^* \ln(y_1^*) + u_2$$

Where
u_2 is the error term of the regression
β_2^* is the coefficient attained from 2SLS (IV) regression
y_2^* is the true value of expenditure at time 2

Methodology (Continued)

$$Var[\ln(y_1^*)] = \frac{\beta_2}{\beta_2^*} Var[\ln(y_1)]$$

$$Var(u_2) = Var[\ln(y_2^*)] - Var[\ln(y_1^*)] \cdot (\beta_2^*)^2$$

Where
β_2 is the coefficient from OLS regression
Var is the variance of corresponding variable

Data

- **Panel Attrition**

	Households
# of HH Interviewed in 2007	13,270
# of HH Interviewed in 2014	15,921
# of HH Split After 2007	3,950
# of HH Interviewed Only in 2007	1,852
# of HH Interviewed Only in 2014	305
# of HH Interviewed Both in 2007 and 2014	11,666

Table 1

	All Households		Panel Household*	
	2007	2014	2007	2014
Per-Capita Expenditure	735,276	1,009,687	697,377	1,221,980
Household Size	3.74	3.7	3.87	3.91

*Panel households include 10,972 households that are found in both 2007 and 2014 surveys i.e hhid07=hhid14

Table 2

Results

❖ Cross-Section Analysis

quantile	Mean PCE07	Mean PCE14	anngrw
1	247,689	335,571	4.43%
2	389,618	540,038	4.77%
3	542,975	756,134	4.84%
4	777,958	1,073,418	4.71%
5	1,718,484	2,383,717	4.79%
Overall	735,276	1,009,687	4.63%

Table 3

❖ Panel Data Analysis

- **Panel Data without Correcting for Measurement Error**

quantile	Mean PCE07	Mean PCE14	anngrw
1	245,110	536,909	11.85%
2	381,829	729,807	9.70%
3	526,532	868,356	7.41%
4	746,835	1,022,716	4.59%
5	1,587,439	1,578,273	-0.08%

Table 4

Results (Continued)

- **Simulated Panel Data Correcting for Measurement Error**

quantile	anngrw
1	10.67%
2	7.91%
3	6.18%
4	4.30%
5	0.80%

Table 5

Conclusions

❖ Cross-section analysis shows:

- Overall growth rate of expenditure between 2007 and 2014 is, on average, 4.63% per year.
- The growth rates among the 5 quintiles have been equal with the third quintile (middle 20%) experiencing the highest growth
- Indonesia's growth between 2007 and 2014 has, arguably, **not been pro-poor** since the bottom 20% has not experienced a higher growth than the other 80%.

❖ Panel-Data analysis shows:

- Without correcting for measurement error, the bottom 20% experienced a high growth, nearly double the median of growth rates among the 5 quintiles.
- Thus, Indonesia's growth has been pro poor

➢ **However**, simulation accounting for measurement error, shows that the previous panel-data analysis has overestimated the growth rates.

➢ Growth for the 1st quintile is as high as suggested and growth for 5th quintile is no as low as previously indicated.

➢ Growth for the 1st quintile is higher than than the other 4 quintiles. So, shows that growth has been pro-poor.

Acknowledgements

- I would like to thank my mentor Professor Paul Glewwe for his tremendous support and constant guidance throughout this research project
- I would like to thank the Undergraduate Research Opportunity Project (UROP) for funding this research project.

Acknowledgements

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